

MESIODENS: A CASE REPORT AND LITERATURE REVIEW

Maja Dragovic¹, Julia Solomondos², Ioanna Arvanitaki³, Konstantina Taoufik⁴



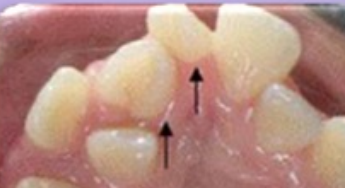

1. Undergraduate Student, School of Dentistry, European University Cyprus; Bachelor of Science in Biological Sciences, University of Calgary
2. Undergraduate Student, School of Dentistry, European University Cyprus; Bachelor of Administrative Studies Honours Management, York University
3. Undergraduate Student, School of Dentistry, European University Cyprus
4. Pediatric Dentistry Lecturer, School of Dentistry, European University Cyprus

Mesiodens Literature Review

CHARACTERISTICS

- A supernumerary tooth located in the midline between or behind the central incisors
- The most common type of supernumerary tooth
- Can present in both arches, but rare in the mandible
- May occur as single, multiple, unilateral, or bilateral; Erupted or non-erupted
- Etiology remains unclear; Combination of genetic & environmental factors

TYPES

Conical or peg shaped	Tuberculate or barrel shaped	Supplementary	Molariform
			
<ul style="list-style-type: none">○ Peg shaped tooth○ Small size○ Most common in permanent dentition○ Rarely delays eruption○ Causes rotation or displacement of permanent incisors	<ul style="list-style-type: none">○ Possesses > one cusp or tubercle○ Barrel-shaped○ May be invaginated○ Delayed Root formation○ Often paired○ Rarely erupt○ Associated with delayed eruption of the incisors	<ul style="list-style-type: none">○ Resembles a normal tooth in size and shape○ Majority of primary dentition cases○ Seldom remain impacted	<ul style="list-style-type: none">○ Resembles molars○ Cusps, developmental groves○ Rarest type

CLINICAL INDICATORS

A mesiodens should be suspected when:

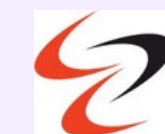
- There is asymmetry in the eruption pattern of maxillary incisors
- The maxillary primary incisors are over-retained
- There is significant delayed or ectopic eruption of one or both permanent maxillary incisors



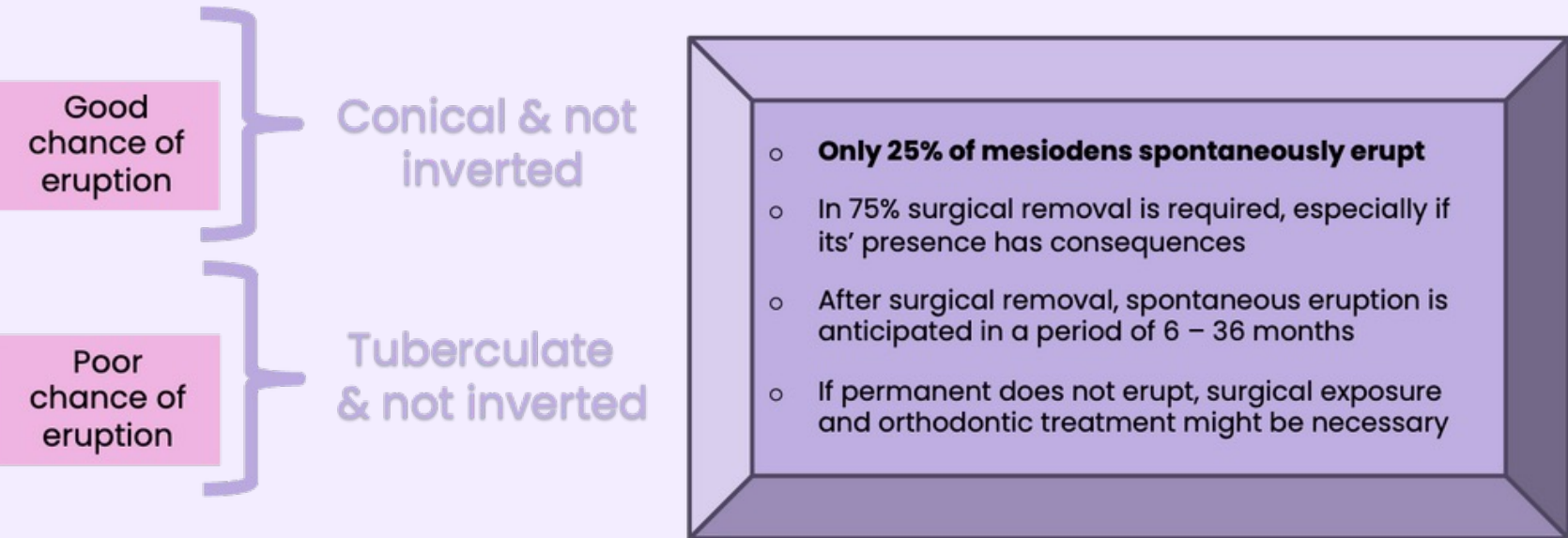
In those situations radiographic examination

COMPLICATIONS

- Failure of eruption
- Displacement or Rotation
- Crowding or Abnormal Diastema
- Root Abnormalities
- Cyst Formation
- Ectopic Eruption into nasal cavity



MANAGEMENT CONSIDERATIONS



MESIODENS IN THE PRIMARY DENTITION

MULTIPLE MESIODENS USUALLY DO NOT ERUPT

UNERUPTED
DO NOT CONDUCT SURGICAL EXTRACTION to avoid disruption or damage underlying permanent teeth

ERUPTED
WAIT, as there is a chance to shed by itself, **if not**, the extraction should be arranged when the child can cope with the procedure and before any impact to the permanent dentition, usually early mixed dentition

MESIODENS IN THE MIXED DENTITION

MULTIPLE MESIODENS USUALLY DO NOT ERUPT

UNERUPTED
SURGICAL EXTRACTION to avoid disruption or damage underlying permanent teeth

ERUPTED
Extraction should be arranged when the child can cope with the procedure and before any impact to the permanent dentition

Extraction is recommended during the early mixed dentition phase

- ✓ Allows normal eruptive forces of the permanent incisor to bring itself into the oral cavity
- ✓ Correct alignment of adjacent teeth

WHAT IF EXTRACTION IS DELAYED?

Delayed treatment → extraction of mesiodens when unerupted central incisor's apex is almost mature (~10 years old)

Consequences

- Inhibition or delay of eruption
- Displacement of adjacent tooth
- Interference with orthodontic appliances
- Presence of pathologic condition
- Root resorption
- More complex surgical & orthodontic management

Extraction during late mixed dentition

- The forces that cause normal eruption are diminished
- Space loss & midline shift of central incisors may have already occurred, since the lateral incisors will have erupted & may have drifted mesially into the central space

Surgical management varies & depends on:

- Size
- Shape
- Patient's dental development

Close monitoring after extraction

- 6 months after extraction → clinical & radiographic assessment to determine if tooth has erupted, absence of associated pathology, symptomless
- If it has not erupted → surgical exposure & orthodontic treatment recommended

Clinical Case Report

CASE HISTORY

A 7 year old cooperative boy with free medical history came with his mother to the EUC Pediatrics Clinic, as the mother was worried about two teeth that erupted, one behind the other, in the area of tooth #61 after its' exfoliation.

CLINICAL FINDINGS

Poor oral hygiene – visible plaque on all surfaces
Cavitated carious lesions on #16, 26

Ectopic eruption of tooth #21

Negative overbite at the area of #21

Tooth crown palatally

- Erupted crown
- Yellowish color
- Located palatally behind #21
- Crown width ½ of the central permanent incisor



RADIOGRAPHIC FINDINGS

Carious lesions

All permanent teeth present

Unerupted #22, located next to #21

Supernumerary tooth at area of #21



SUPERNUMERARY TOOTH
OR
ECTOPIC ERUPTION OF #22



FINAL DIAGNOSIS

**NORMAL LOCATION OF #22
SUPERNUMERARY TOOTH CROWN & ROOT
PALATAL LOCATION BEHIND #21**

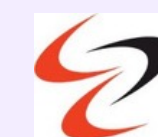


MESIODENS

TREATMENT REQUIRED

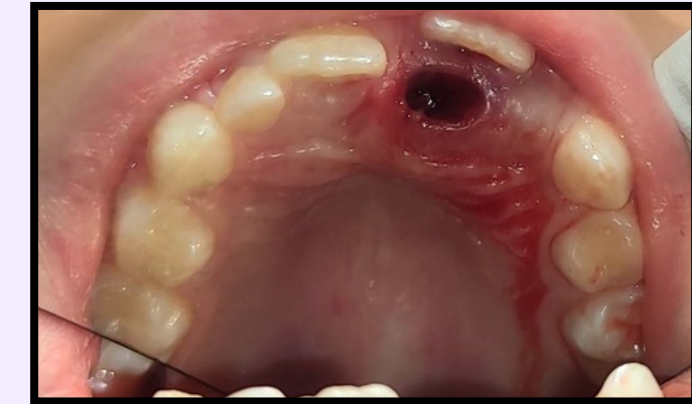
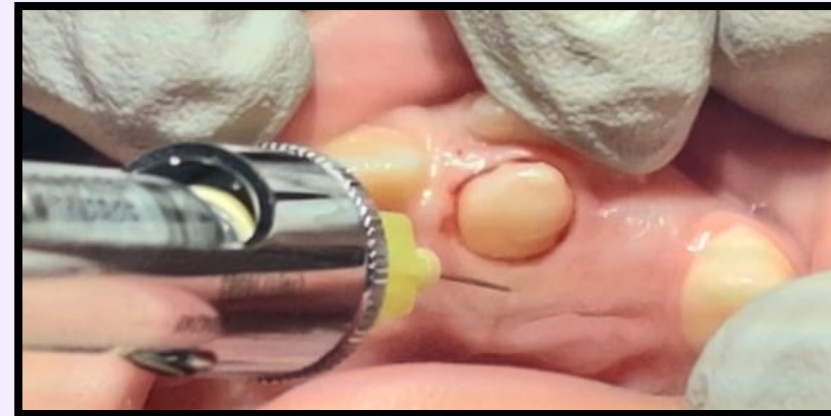
Extraction of mesiodens as it has caused consequences to the permanent dentition & is deemed a simple procedure.

Sister, mother, and grandfather also have/had supernumerary teeth



MESIODENS EXTRACTION PROCESS

- Topical anesthetic around the mesiodens
- Periodontal ligament anesthesia and palatal infiltration with articaine 4% - 1 cartridge
- During the procedure supplementary palatal anesthesia with ½ cartridge
- Slow injection without the patient seeing the needle
- Straight elevator used to gently separate the tooth from its socket
- Straight elevator to make the tooth mobile
- Upper premolar/primary molar forceps to extract the tooth with back-forward & rotatory movements, by placing the forceps deeper into the soft tissues, as it was slipping and could not be grasped tightly
- Hemostasis achieved and socket left to heal



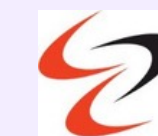
MESIODENS FEATURES:

- Partially erupted crown, not identified prior to the extraction due to the morphology of the crown
- Size: 19mm, longer than primary incisors and equivalent to several permanent incisors
- Longer root than crown
- Morphology resembling canine
- Crown diameter at the middle 3rd smaller than the cervical 3rd
- Yellowish color with white areas



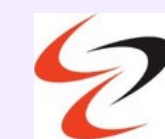
ONE WEEK RECALL

Patient was seen after one week - well healed extraction site



CASE DISCUSSION

- The extraction of an erupted mesiodens is a procedure that can be conducted by a general dentist, as long as the child is cooperative
- For the extraction, profound anesthesia is required, and supplementary might be needed especially if the mesiodens has the size of permanent incisors
- If the mesiodens is located behind the permanent incisors, buccal anesthesia might be unnecessary
- Radiograph examination is essential before the extraction to make certain that the tooth that is identified as a supernumerary tooth is not an ectopic erupted incisor
- The position and the shape of the mesiodens might demand certain modifications of the extraction technique like forceps positioning, to avoid trauma to the adjacent soft, hard tissues and teeth
- Monitoring of younger siblings is necessary as there might be a genetic predisposition
- No treatment is not an option, since the presence of a mesiodens can cause consequences such as delayed eruption, crowding, spacing, impaction of permanent incisors, alteration in the path of eruption of permanent incisors, median diastema, cystic lesions, intraoral infection, rotation, and root resorption



CONCLUSION

Extraction of erupted in the oral cavity mesiodens can be conducted by general dentists for cooperative children as long as radiographic examination is conducted before, to eliminate the possibility of ectopic eruption of the permanent tooth. The dentist must have in mind the challenges which might be confronted during the procedure. While for the management of unerupted mesiodens, several factors should be taken into account, to decide the appropriate time of extraction.



BEFORE



AFTER

REFERENCES

1. Rohilla, M. (2018). Mesiodens Diagnosis and Management: Series of Case Report.
2. Kumar, A., Namdev, R., Bakshi L., Dutta, S. (2012). Supernumerary teeth: Report of four unusual cases. *Contemporary Clinical Dentistry*, 3(1). S71-7.
3. Meighani, G., & Pakdaman, A. (2010). Diagnosis and management of supernumerary (mesiodens): a review of the literature. *Journal of dentistry (Tehran, Iran)*, 7(1), 41-49.
4. Russell, K. A., & Folwarczna, M. A. (2003). Mesiodens--diagnosis and management of a common supernumerary tooth. *Journal (Canadian Dental Association)*, 69(6), 362-366.
5. American Academy of Pediatric Dentistry. Management considerations for pediatric oral surgery and oral pathology. *The Reference Manual of Pediatric Dentistry*. Chicago, Ill.: American Academy of Pediatric Dentistry; 2023:527-36.
6. Tatal F. S. (2003). Reshaping a mesiodens. *Pediatric dentistry*, 25(6), 585-586.
7. Qamar, Ch. R., Bajwa, J. I., & Rahbar, M. I. (2013). *Pakistan Orthodontic Journal*, 5(2), 73-76.
8. Pescia, R., Kiliaridis, S., & Antonarakis, G. S. (2020). Spontaneous eruption of impacted maxillary incisors after surgical extraction of supernumerary teeth: a systematic review and meta-analysis. *Clinical oral investigations*, 24(11), 3749-3759.
9. Unlu, Nihal. (2020). Multidisciplinary Treatment of Mesiodens Causing Delayed Tooth Eruption and Follow-Up: Report of Two Cases. *Journal of Pediatric Dentistry*.
10. Shih, W. Y., Hsieh, C. Y., & Tsai, T. P. (2016). Clinical evaluation of the timing of mesiodens removal. *Journal of the Chinese Medical Association : JCMA*, 79(6), 345-350.
11. Singh, V. & Sharma, A. (2014). Supernumerary Teeth in Nepalese Children. *The Scientific World Journal*. 2014. 10.1155/2014/215396.
12. Villavicencio, J., Silva, J.A., & Cárdenas, S.M. (2015). VARIACIONES CLÍNICAS DE LOS MESODIENTES DOBLES: REVISIÓN Y REPORTE DE CASOS.
13. Molaasadollah F, Eslami S, Goloogavegani MV, et al. (2018). Molariform mesiodents in a non-syndromic patient: a case report. *J Dent Health Oral Disord Ther*. 2018;9(6):485-487.

